Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 10 *Swine Day (1968-2014)*

Article 908

2002

Effects of paylean (ractopamine▪HCl) on finishing pig growth and variation

M R. Barker

C N. Groesbeck

S M. Hanni

See next page for additional authors

Effects of paylean (ractopamine▪HCl) on finishing pig growth and variation

Abstract

A total of 336 pigs were used in a 21-day trial to determine the effect of Paylean (9.0 g/ton RactopamineÂ·HCl) on finishing pig growth and variation. Pigs were allotted based on weight so that all pens had the same initial weight and degree of variation within the pen. Pigs fed Paylean had greater ADG and better feed efficiency than control-fed pigs (P<0.05). However, no differences in pen coefficient of variation were observed (P>0.70). The results suggest that adding Paylean to the diet improves finishing pig growth performance but does not affect weight variation within the pen.; Swine Day, Manhattan, KS, November 14, 2002

Keywords

Swine day, 2002; Kansas Agricultural Experiment Station contribution; no. 03-120-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 897; Swine; Ractopamine; Paylean; Variation

Authors

M R. Barker, C N. Groesbeck, S M. Hanni, C W. Hastad, T P. Keegan, K R. Lawrence, M G. Young, Robert D. Goodband, Michael D. Tokach, and Steven S. Dritz

EFFECTS OF PAYLEAN (RACTOPAMINE·HCl) ON FINISHING PIG GROWTH AND VARIATION

M. R. Barker, S.S Dritz[1], R. D. Goodband, M. D. Tokach, C. N. Groesbeck, S. M. Hanni, C. W. Hastad, T. P. Keegan, K. R. Lawrence, and M. G. Young

Summary

A total of 336 pigs were used in a 21-day trial to determine the effect of Paylean (9.0 g/ton Ractopamine·HCl) on finishing pig growth and variation. Pigs were allotted based on weight so that all pens had the same initial weight and degree of variation within the pen. Pigs fed Paylean had greater ADG and better feed efficiency than control-fed pigs ($P<0.05$). However, no differences in pen coefficient of variation were observed ($P>0.70$). The results suggest that adding Paylean to the diet improves finishing pig growth performance but does not affect weight variation within the pen.

(Key Words: Ractopamine, Paylean, Variation.)

Introduction

Paylean (Ractopamine·HCl) is an effective growth promoting drug in swine. Paylean supplementation has been shown to improve ADG, F/G, and decrease fat deposition. Because of its effects on growth rate, the objective of the study was to determine if feeding Paylean might decrease the potential variation in weights of pigs in a pen.

Procedures

The experiment was conducted at the Kansas State University Swine Teaching and Research Center. A total of 336 finishing pigs (168 barrows and 168 gilts) were weighed and allotted to treatments so that within sex, each pen had the same mean weight and degree of weight variation among pigs in each pen. The experiment was divided into two identical trials conducted in May and July of 2002. Fourteen pens (seven of barrows, seven of gilts) were assigned to each treatment. Feed and water were offered ad libitum. Diets were milo-soybean meal-based and formulated to contain 1.00% total lysine with or without 9 g/ton of Paylean (Table 1).

Pigs were weighed and feed intake was determined every 7 days during the 21 day experiment. Average daily gain, ADFI, F/G, and pen coefficient of variation were determined. The coefficient of variation was determined by dividing the standard deviation of pig weight in the pen by the average weight of pigs in the pen. For example, if the average weight of pigs in a pen is 250 lb with a coefficient of variation of 8%, 68% of the pigs should weigh between 230 and 270 lb (8% * 250 lb = 20 lb). Data were analyzed using the Proc Mixed procedure of SAS.

[1]Food Animal Health and Management Center.

Table 1. Diet Composition (As-Fed Basis)

Ingredient, %	Control
Milo	74.03
Soybean meal, (46.5%)	23.82
Monocalcium Phosphate, (21% P)	0.55
Limestone	0.90
Salt	0.35
Vitamin premix	0.10
Trace mineral premix	0.10
Lysine HCl	0.15
Calculated Analysis,	
ME, kcal/lb	1,487
Lysine, %	1.00
Calcium, %	0.55
Phosphorus, %	0.49

[a]Paylean was added at .05% of the diet to provide 9 g/ton Ractopamine·HCl.

Results and Discussion

Pigs fed Paylean had greater ADG and improved feed conversion compared to control pigs ($P<0.05$, Table 2). Feed intake was not affected ($P>0.90$) by dietary treatment. The final weight of pigs fed Paylean was greater than that of control pigs at the end of the 21-day trial because of the greater ADG. However, no differences were observed in pen variation among dietary treatments ($P>0.70$). A decrease in pen variation was observed from the start to the finish of the trial for both the control and Paylean-fed pigs. Control pigs averaged a pen coefficient of variation of 7.71%. This means that 68% of the pigs were between 236.7 and 276.3 lb, or a range of 39.56 lb (Figure 1). The Paylean-fed pigs had a coefficient of variation of 8.15%. This means that 68% of the pigs were between 242.8 and 285.8 lb, or a range of 43.0 lb.

These findings suggest that although Paylean (Ractopamine·HCl) improves growth performance and feed efficiency, it does not appear to reduce weight variation within the pen.

Table 2. Effects of Paylean on Finishing Pig Growth Performance and Variation[a]

Item	Control	Paylean	SEM	P-value <
Initial wt, lb	221.07	222.29	2.45	0.62
Initial CV, %[b]	9.19	8.66	0.82	0.52
Initial SD, lb	±20.31	±19.23		
ADG, lb	1.76	2.07	0.08	0.001
ADFI, lb	6.09	6.10	0.29	0.97
Feed/gain	3.62	3.06	0.14	0.001
Final wt, lb	256.51	264.33	3.23	0.02
Final CV, %	7.71	8.15	0.54	0.42
Final SD, lb	±19.78	±21.54		

[a]Values represent the mean of 14 pens per treatment. There were 7 pens of barrows and 7 of gilts with 12 pigs per pen. Paylean was added to the diet at 9.0 g/ton and fed for 21 days.

[b]Coefficient of variation (CV) indicated that 68% of the pigs will be within this percentage or weight range of the mean weight. Coefficient of variation equals the standard deviation (SD) divided by the mean weight.

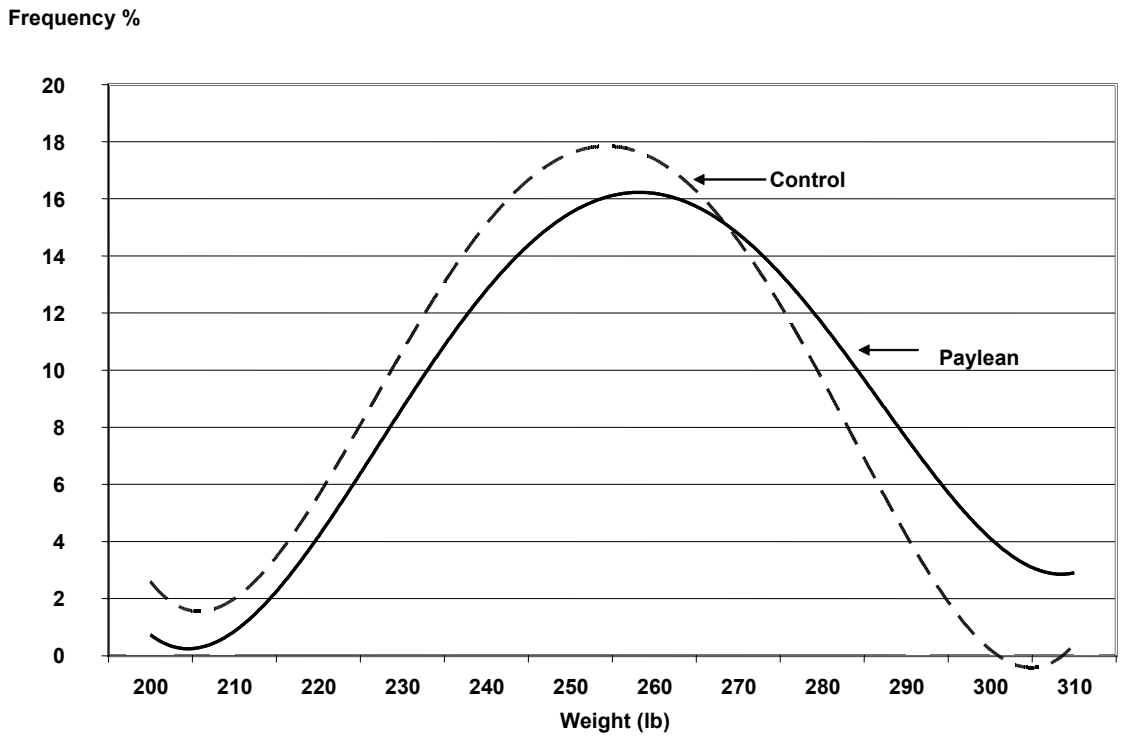

Figure 1. Final Weight Distribution of Pigs Fed 9.0 g/ton Paylean (Ractopamine HCl) for 21 Days or Control Pigs Fed a Diet Without Paylean. Final coefficient of variation was 7.71 and 8.15% (SEM = 0.54 and *P*>0.42) for control and Paylean fed pigs, respectively.